THE CANNING TRADE

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EDITORIALS

EVERY-OTHER-YEAR EXHIBIT? —Ordinarily the annual meeting of the Canning Machinery and Supplies Association held each year at the National Convention is a more or less routine affair, with Committee reports chiefly of interest to members of that Association only. This year two subjects of considerable interest to the entire industry were discussed at some length, before a packed house (relatively speaking, at least).

The first discussion had to do with the schedule of the Convention Exhibit. It was brought out by a number of firms serving a great many industries, that they found it increasingly difficult to Exhibit every year. They pointed out that other industries had found that less frequent shows were more successful to the Exhibitor and more interesting to prospective buyers. While we may be mistaken, it appeared to the writer, that most of these spokesmen were relatively new members of the Association. At any rate, old line members were quick to point out that they were reluctant to break the chain of continuity that had been built up over the years (49); that the contact in the Exhibition Hall was invaluable in meeting both new and old customers; that it was rather impossible to measure the benefits accruing from the show, and equally difficult to foretell the effects of skipping a show—although, past experience (once during World War II and once during the depression, if memory serves us right), resulted in rather drab Conventions.

Others, just as soon as they could be recognized—and there were usually half a dozen representatives waiting for the floor, so intense was the discussion—were quick to point out that the show was anything but in a rut by virtue of its yearly performance; that there were a great many new developments and innovations displayed each year, as any one could plainly see, if he took the time to look around.

The meeting apparently could have gone on for several hours and because time was limited, President Funkhouser suggested that members send their opinions to the Association office, so that they may be collated and sent out to the membership for further study. It will take a change in the By-Laws of the Association to change to an every other year basis and the membership will have an opportunity to vote on this, following receipt of various views and arguments mentioned above.

This matter is being brought to the attention of canners in this column, on our own initiative, because canners are very definitely interested parties, though not members of CMSA. It goes without saying too, that even though the problem is basically one for CMSA members to decide, they will be most interested in having the views of their canner customers. NCA-CMSA cooperation has always worked that way. So if the spirit moves you, Mr. Canner, send in your views either to this publication or the Association and we'll bet a plug nickle they'll get a hearing.

As a CMSA Charter Member, this publication has two points we should like to bring out. (Dave Lewis, please take notice for your official record):

When we go to Chicago next February it will be the 8th consecutive year the Convention has alternated between Atlantic City and Chicago. The pattern could change, as a matter of fact, it's possible, as Herb Shriner would say, that the 1959 Convention will be held at Miami Beach. This uncertainty, which will always be with us, serves to emphasize the difficulty of establishing an Exhibit on a set, every other year basis. Then too, if the Convention continues to be alternated between Atlantic City and Chicago it would be well to remember that these Conventions attract different people—from different parts of the country. Dave Lewis' figures prove, we believe, that there is a predominance of mid-westerners in Chicago, easterners in Atlantic City, with the west coast not too discriminating. Despite the fact then, that the Atlantic City Convention Hall offers Exhibition facilities far superior to any in Chicago, it would hardly seem wise to limit the exhibits to that locale.

Secondly, it's a well known fact that the canning industry has good years and bad years and that canners buy after good years not after bad ones. These good and bad years very definitely do not rotate constantly on an every other year basis. From the standpoint of attracting the most business then, it would be impossible to establish an exhibit on a set, every other year basis, regardless of where the Exhibition is held.

In closing, it should be emphasized that, regardless of the out-come of these deliberations, an Exhibit will be held in Chicago next year, for this one will be in commemoration of the Associations', both NCA and CMSA, Golden Anniversary.^

But we mentioned that there were two important discussions at the CMSA meeting. The second had to do with adopting a sanitary code for canning equipment. A CMSA Committee is working with an NCA Committee on this project. There were a number of questions as to whether or not such a move might invite interference from government agencies and/or other Associations. The study will continue and the Committee will report back for further action.

CONVENTIONS • *and* • SCHOOLS

FEBRUARY 14-15, 1956 — NEW YORK STATE CANNERS AND FREEZERS ASSOCIATION, Canners' School, Agricultural Experiment Station, Geneva.

FEBRUARY 16, 17, 1956 — OZARK CANNERS ASSOCIATION—Annual Convention, Colonial Hotel, Springfield, Missouri.

FEBRUARY 17-18, 1956 — CANNERS LEAGUE OF CALIFORNIA, Annual Fruit and Vegetable Sample Cutting, Fairmont Hotel, San Francisco, California.

FEBRUARY 20-24, 1956 — TRI-STATE PACKERS ASSOCIATION—7th Annual Food Processors Workshop, University of Maryland, College Park, Md.

FEBRUARY 21, 22, 1956—IOWA-NEBRASKA CANNERS SHORT COURSE—Memorial Union, Iowa State College, Ames.

FEBRUARY 22-24, 1956 — CANNED FOODS ASSOCIATION OF BRITISH COLUMBIA, Annual Convention, Georgia Hotel, Vancouver, B. C., Canada.

FEBRUARY 27-29, 1956—CANADIAN FOOD PROCESSORS ASSOCIATION, Annual Convention, Harrison Hot Springs Hotel, Harrison Hot Springs, B. C., Canada.

MARCH 2-3, 1956—VIRGINIA CANNERS ASSOCIATION, 48th Annual Convention, Hotel Roanoke, Roanoke, Virginia.

MARCH 5-9, 1956—NATIONAL-AMERICAN WHOLESALE GROCERS ASSOCIATION, 50th Annual Convention, Palmer House, Chicago, Illinois.

MARCH 6, 1956 — TENNESSEE - KENTUCKY CANNERS ASSOCIATION — Annual Spring Meeting, Peabody Hotel, Memphis, Tenn.

MARCH 14-15, 1956—TRI-STATE PACKERS ASSOCIATION, Spring Meeting, Lord Baltimore Hotel, Baltimore, Md.

MARCH 15-16, 1956 — PENNSYLVANIA CANNERS ASSOCIATION—3rd Annual Canners Workshop, Allenberry Lodge, Boiling Springs, Pa.

MARCH 20, 1956 — WISCONSIN CANNERS ASSOCIATION—Production and Technology Conference, University of Wisconsin Campus, Madison, Wis.

MARCH 21, 1956 — WISCONSIN CANNERS ASSOCIATION—Safety Institute, Loraine Hotel, Madison, Wis.

MARCH 23-24, 1956—UTAH CANNERS ASSOCIATION, Annual Convention, Hotel Utah, Salt Lake City, Utah.

MARCH 26-27, 1956—CANNERS LEAGUE OF CALIFORNIA, 52nd Annual Meeting, Santa Barbara Biltmore, Santa Barbara, California.

APRIL 6, 1956 — NATIONAL PICKLE PACKERS ASSOCIATION, Spring Meeting, Drake Hotel, Chicago, Ill.

APRIL 8-11, 1956 — U. S. WHOLESALE GROCERS ASSOCIATION — Annual Convention and Grocery Distribution Exposition, Conrad Hilton Hotel, Chicago, Illinois.

MAY 6-10, 1956—SUPERMARKET INSTITUTE — Annual Convention, Cleveland, Ohio.

MAY 11-12, 1956—PENNSYLVANIA CANNERS ASSOCIATION — 5th Annual Sales Clinic, Pocono Manor Inn, Pocono Manor, Pa.

MAY 15-17, 1956—11TH PURDUE INDUSTRIAL WASTE CONFERENCE—Purdue Memorial Union, Lafayette, Ind.

JUNE 10-14, 1956—NATIONAL ASSOCIATION OF RETAIL GROCERS—Annual Convention, Los Angeles, California.

NOVEMBER 7-8, 1956 — WISCONSIN CANNERS ASSOCIATION, Annual Convention, Schroeder Hotel, Milwaukee, Wis.

NOVEMBER 8-9, 1956 — IOWA-NEBRASKA CANNERS ASSOCIATION — Annual Meeting, Fort Des Moines Hotel, Des Moines, Iowa.

NOVEMBER 18-19, 1956 — PENNSYLVANIA CANNERS ASSOCIATION—42nd Annual Convention, Yorktowne Hotel, York, Pa.

DECEMBER 13-14, 1956 — NEW YORK STATE CANNERS & FREEZERS ASSOCIATION, 71st Annual Meeting, Statler Hotel, Buffalo, N. Y.

FEBRUARY 1957 — NATIONAL CANNERS ASSOCIATION AND ALLIED INDUSTRIES, Annual Convention, Chicago, Illinois.

Rogers Brothers Seed Company has just issued this 80th Anniversary 1956 Catalog of peas, beans and corn seed, in which the company specializes. All varieties are fully described and illustrated with suitability for canning designated. A copy of the catalog can be had for the asking by addressing the company at Idaho Falls, Idaho.

The **Sinclair Scott Company** of Philadelphia, Pennsylvania, introduced a new **Krinkle Kut Machine** for krinkle kutting potatoes for canning or freezing, at the Annual Exhibit of the Canning Machinery & Supplies Association January 17 to 21 at Atlantic City. The machine, which is 36" long, 15" high, and 12" wide, will kut one previously peeled potato per second. It is of all stainless steel construction and operates on a 110 volt system.

Further information can be obtained by writing: Sinclair Scott Company, 6245 State Road, Philadelphia 35, Pennsylvania.

The 24th Annual National Cherry Pie Baking Contest will be held at the Sheraton Hotel, Chicago, on Tuesday, February 21, with winners from 48 states, the Hawaiian Islands and Canada competing. It will be the first time that Canada has taken part in the baking event. The 50 contestants, all between the ages of 14 and 20, have won town, county and state pie baking contests. More than 100,000 young people from coast to coast took part in the preliminary bake-offs. The winner will receive a college scholarship, a trip to Washington and New York, and the General Electric range on which she bakes her winning pie.

Iowa State College in cooperation with the **Iowa-Nebraska Canners Association** will present a two day canners conference, also of interest to seedsmen and growers at Ames, Iowa, February 21-22. An excellent program has been arranged, which should be of maximum value to those who attend. All meetings will be held in the Gallery Room, Memorial Union. Full information available from E. P. Lana, Room 307, Horticulture Building, or R. M. Vifquain, Chairman of the Short Course Committee, Iowa State College, Ames, Iowa.

S & W Fine Foods, Inc., San Francisco, Calif., has appointed the **Honig-Cooper Co.** of this city as its advertising agency, effective May 1. The account executive will be **Ted Krough.**

CAL-PAK GROWTH

Outlining the growth of the canning industry in general, and his company in particular, Roy G. Lucks, president of the California Packing Corporation, San Francisco, Calif., advised Security Analysts recently that each man, woman and child in the United States consumed an average of 74.3 pounds of canned fruits, vegetables and juices last year. In 1910 the consumption was but 18.4 pounds per person. He reported that since 1945 his firm has invested $80,000,000 in addition to its facilities and that its annual sales are now almost $250,000,000. This is nearly five times the 1939 figure.

IN MEMORIAM

Mrs. Madaline Cooney Hemingway, 72 year old widow of the late Stuart Hemingway, President of the H. C. Hemingway Company, Auburn, New York, died in Syracuse on Saturday evening, February 4. Mr. Hemingway died last July 28.

Chet Strawn, for the past four years General Manager of the Fruitland Canning Association, Fruitland, Idaho, died on Monday morning, January 30, following an illness of several months. In March, 1955, Mr. Strawn was elected President of North Pacific Canners & Packers, Portland, Oregon, an office which he held to the time of his death. He was also Vice President and a Director of the Purple Plum Association. He is survived by his wife Gladys, daughter Carol and son Roger.

Status and Prospects of Radiation Preservation of Foods

By COL. WILLIAM D. JACKSON

Chief of Research and Development, Office of The Quartermaster General, Department of the Army, Washington, D. C.

In discussing this fascinating research program of radiation preservation of foods, I would like to draw on some personal experience in the feeding of troops in combat. Our purpose in the Quartermaster Corps is to alleviate the hardships of the soldier, particularly those in combat, so as to make him more capable and efficient.

With this in mind let us go back to the year of 1950, when I was in charge of subsistence logistics in the Eighth Army in Japan. Let us look at the pressures and the objectives that motivate the actions of a subsistence officer in time of military action.

At the outset of the Korean hostilities in July, 1950, our first objective was to mount out the divisions located in Japan for immediate combat in Korea. We had to rely on nonperishable food items under these conditions. The combat soldier was given C rations and a B ration, which is a fairly good meal plan of limited variety consisting entirely of canned and other nonperishable items.

Under the stress of those days the soldier of necessity had to be satisfied with those items. Refrigeration distribution facilities in Korea were practically non-existent. While we were constructing a portable bread bakery in Pusan, we tried to ship fresh bread from Moji on the island of Kyushu. The ferry run took 12 hours. The much needed bread reached the front line several days after baking. As this was the rainy season, the weather was hot and humid, and all of the bread arrived covered with mold. We tried baking the bread longer; we adjusted the formula, but the mold spores won out. We were forced to stop shipping bread. If we had been able to extend the shelf life by one week we could have successfully delivered the bread. We tried substituting locally prepared biscuits but we could not keep up with this new demand for baking powder and oven space. The combat soldier was forced to get along on these limited supplies, due to our inability to distribute short shelf life product.

I recall that even with the availability of refrigerated facilities in Japan we found that time and time again we were able to ship produce only to the supply point from where they were to be delivered to the final kitchen where they were to be assembled into meals. At that point rot set in and the perishables had indeed perished. The thought haunted me frequently, how could we possibly extend the refrigeration shelf life? If we could only have doubled it we would have made the difference between hundreds of thousands of men having and not having fresh food.

When we had to rely only on foods preserved using present methods, an element of monotony was introduced. If only we can improve its flavor and its texture, how much greater satisfaction can be extended our men. Looking back to our warehouses we find in some of our far-flung areas tons of potatoes are beginning to sprout on us, we find tons of flour infested with insects. We had to eliminate cereal bars from our rations. We had to destroy much needed food be-

Delivered at the Canning Problems Conference of the 49th Annual Convention of the National Canners Association in Atlantic City on Saturday, January 21, 1956.

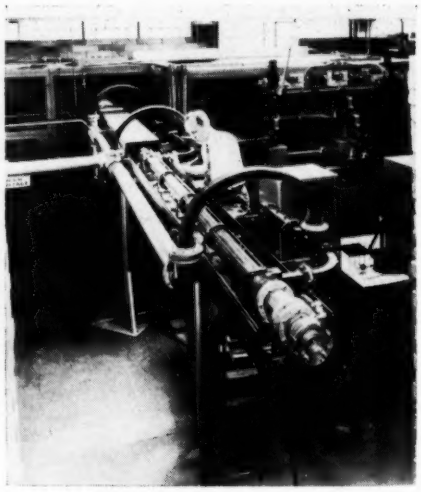
cause of infestation. If there was some way of overcoming this large loss, we would be able to alleviate the tax burden on our relatives back home.

This is a very rough thumbnail sketch of the flashes of concern that came to the minds of military subsistence people during those days. We left with the firm resolution in our minds the we must explore every avenue which promised to prevent recurrence of this type of hardship.

In the meantime, during the Korean fighting and prior to that situation, scientists were contributing to the progress, begun perhaps with the discovery of cathode rays in 1859 and radioactivity in 1895, which contained potentialities for the development of a new and unique process of food preservation. In 1904 in this country Samuel Prescott had published a dissertation on the influence of radium rays on the colon bacillus, the diptheria bacillus and yeast. And it was in 1947 when experimental data were actually published in the scientific literature by A. Brasch and W. Huber of the Electronized Chemical Corporation of Brooklyn. Their paper was quickly followed by a series beginning in 1948 from the Massachusetts Institute of Technology.

THE NEW PROCESS

By this time it was clear that as a result of all this research a new and technically feasible process was with us, that foods as well as drugs could be treated electronically in such wise as to sterilize, pasteurize or otherwise aid in the extension of their edible life. The process became known under many different names, one of the most accurate being radiation preservation of foods. In this new type of preservation, without heat, many new factors must be considered. Some of these are the same or similar to those encountered in present methods of heat sterilization or preservation of canned foods. Others are different due to the inherently different nature of the process involved. The chief characteristic of the process is an extremely small rise in temperature, a degree or so, during the process of sterilization. The nature of the process is basically different from heat sterilization and this is illustrated by the fact that while enzymes are more easily inactivated by heat than are bacteria, the reverse is true when they are subjected to the process of irradiation. In the latter case, enzymes require 10 times or more the radiation intensity necessary to destroy bacteria. It therefore devolved upon anyone interested in the potentialities of this new process to study the factors, old or new, inherent in the process of radiation pasteurization. It is, I think, already clear at this point that there will be some impact upon the older methods of preservation including both canning and freezing. As to how great this impact will be, its timing and its



50 million volt linear accelerator.

action on or interaction with the established processes, it is one of the purposes of our discussion to examine. It is, of course, to the interest of the canning industry to keep current on these matters.

MILITARY AND CIVILIAN INTERESTS

At this point, a word about the interest of the armed forces, who have spearheaded the technological attack on this new method of preserving food. How did they become interested and why did they become interested in committing an important segment of their food research energies in this field? In the first place, the U. S. armed forces are the world's largest buyers of subsistence items. Total Department of Defense subsistence procurement (excluding local Navy purchases) were over $4 billion ($1.75 billion in perishables) in 1945 with a peacetime low of $500 million (over $250 million in perishables) in 1950. Army procurement of meats, a perishable item, in wartime reached about 2¾ billion pounds of fresh meat and three quarters of a billion pounds of canned meat in 1944; consider the opportunity and need here for a process that would aid in more easily handling the perishable items alone. Now, it is estimated that during World War II with 5,000,000 men overseas, the additional cost of transporting perishable foods over that of nonperishable foods came to $200 million. Any technique that would reduce this cost either through a more economical method of preserving foods or a supplement to or replacement of the present system of refrigerating foods would be eagerly received.

In the second place, the supply system for the armed forces is geographically extensive. Supplying perishables to overseas areas involves warehouses, railroad reefer cars, refrigerator ships, trucks, and trailers. Radiation processing could relieve the congestion of machinery-laden naval vessels and ameliorate the expense of static refrigerated facilities.

And finally, food quality or quantity is a controlling factor in the success of many tactical operations. For example, reduction in the frequency of resupplying warships with perishables would increase their cruising range—particularly in the case of nuclear-powered vessels.

These then are the reasons why the armed forces are studying radiation sterilization of foods, but there are other reasons besides improving military logistics why the process of ionizing foods is being pursued with vigor.

First, there are public health benefits to be derived from this new and unique weapon in the fight against food-borne diseases. Trichinosis, a wide-spread disease in the U. S., found particularly in pork, appears, from recent work, to be vulnerable to destruction by gamma or beta radiation. Also, there are potentially massive contributions which could help satisfy the ever-increasing demands of mankind for food particularly through reductions of losses during storage and shipment of foods. Furthermore, this method of preservation not only overlaps and supplements conventionally preserved products but, recent research has demonstrated, has certain unique applications. The extension of the storage life of potatoes and the de-infestation of grain and flour are examples.

Here also is another possible contribution to the dynamic growth of the national economy and increasing standards of living. The remarkable increase in percentage of income lavished by the American housewife on foods has a twin inspiration. First, she will pay for greater ease of preparation and, secondly, for improved quality. This trend started with the invention of the art of canning by Appert and the subsequent improvement and elaboration of the process has resulted in an enormous saving of labor for the housewife and improvement in the nutrition of the family. This trend has extended into other fields with the development of frozen-processed meals and ready-to-bake goods, and now irradiation of food, either alone or in partnership with these processes and products, or both, shows much promise in contributing to future advances. It may be that the taste of some canned foods will be significantly improved through replacement of heat or, more likely, partial replacement of heat by cold irradiation. There are also possibilities of superior retention of nutrients. In the area of ready-to-bake goods, irradiation may drastically reduce or eliminate the necessity for refrigerated handling, thereby greatly facilitating their distribution. And so we see the military and civilian implications of this program.

ARMED FORCES RESPONSIBILITY

The responsibility of effecting this program lies with the Army, which through the Quartermaster Corps and an external contractual program involving universities, foundations and other outside

sources, supplies the food technology and, with the cooperation of the Atomic Energy Commission, handles radiation technology. Other government agencies, such as the Office of the Surgeon General, the U. S. Department of Agriculture and the Food and Drug Administration, are participating in the activities through various advisory committees as well as the food industry itself.

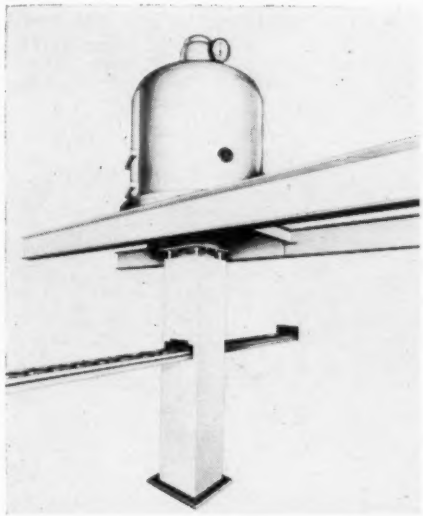
We of the Quartermaster Corps are attempting to expedite the research and development of this new and unique process to the point that American industry can assume responsibility as soon as possible. We know that there must be wide industrial participation for the military to benefit fully. Therefore we have driven toward this goal from the very beginnings of this project. We have done most of the work by contracts in order to spread the know-how. We have activated extensive means of release of information to the public. We have been working closely with industry. We anticipate the point when the Army can step back and let American industry take the lead in this area.

STATUS OF PROGRAM

But, you say, where do we stand today? What do we know regarding the fundamental qualities that every food processing technique must possess in order to be commercially feasible? We know that there are four prerequisities that the radiation processing of foods must satisfy. Let us discuss them one by one and relate each to pertinent data and facts uncovered during the course of accomplished experimental work.

KILL—First, will this sterilizing process actually kill microorganisms? There is no question but that all life can be destroyed using this process providing a sufficiently high dosage is used. In general, the lower in the evolutionary scale, the higher the dosage required. The simpler the organism, the less sensitive it is to radiation damage. Thus, while insects can resist only a twentieth of the lethal dosage for microorganisms, man can stand only a thousandth. These dosages vary from 2,000,000 reps for the complete sterilization of foods to 200,000 reps where a sort of pasteurization and an increased shelf life of foods is obtained. It is possible to destroy trichina in pork and insects in flour at 30,000 reps and at 12,000 reps or thereabouts potatoes and onions are inhibited from sprouting. Thus, we see that we have met the first condition. The contaminating organisms can be destroyed at attainable dosages.

TOXICITY—Secondly, what about the toxicity of the irradiated food? Is it wholesome for human nutrition? It is necessary to take a conservative approach toward evaluating the wholesomeness of irradiated foods. All experiments to date indicate the fitness of irradiated food for human consumption. However, a vast amount of future work remains to be done. It is necessary to avoid conclusions until extensive and thorough examinations have been made because of the large numbers of people that will be affected if the process is ultimately successful. The Food and Drug Administration and the Office of the Surgeon General share this view and are working with us on the problem. From the results so far we may conclude that no radioactivity is induced in foods by the beta and gamma sources used. So far the most sensitive instruments have not been able to detect any induced radioactivity. In fact, in one series of tests 24 of the most common elements found in foods that might be susceptible to induced radioactivity were individually subject to food type irradiation by cobalt 60 with negative results. So far there has been no evidence to indicate that irradiated foods are toxic. Independent studies have been conducted at many laboratories. In one test alone, about 3,000 animals were followed over three generations, including gross as well as 2,600 detailed histopathological examinations. Forty foods have been examined using rats as test animals on our 8-week sub-acute toxicity test with satisfactory results. Studies have been initiated to be carried through four generations of rats and another species of animal. Results will be noted on food consumption, growth, lactation, size of litter, viability of young and longevity. Histopathological examinations will be made. Furthermore, two preliminary three-week controlled human feeding tests at the Army's Medical Nutrition Laboratory have been completed with no differences whatsoever between the volunteers fed irradiated and those fed unirradiated foods. In these tests 35 percent of the diet was irradiated. We plan to raise the level to 70 percent in the next series.



One million volt resonance transformer with food conveyor line.

However, there is some loss in nutritional value in some instances. The vitamin content of certain foods is decreased by sterilizing doses of radiation. In such cases we note that the growth curve of the animals fed irradiated foods eventually drops slightly below that of the control. This loss in nutritional value is not a sign of toxicity. Also, it is a characteristic of other methods of food preservation.

TASTE—Thirdly, the treatment must not adversely affect taste, texture, odor and appearance of foods. Owing to the nature of the process we are discussing, that there will be some affect we can predict. The chemical change, induced in bacteria by the lethal rays, is no selective and other changes are induced in the food which are similar. The amount of these changes is small but sometimes quite noticeable. We find that different foods vary in their response to ionizing radiations as far as these characteristics are concerned. Milk, for example, will develop undesirable flavor changes at 100,000 reps while dried prunes were reported to be capable of withstanding over 3,000,000 reps. With dosages up to the 30,000 rep level for destruction of liver flukes, trichina and such parasites, only a few foods were adversely affected. With a pasteurizing dose of 200,000 reps (about 10 percent of the sterilization dose), we find foods such as bananas, crab meat, oranges, strawberries, butter, milk and cheese developing undesirable odors and flavors. On the other hand, there are other foods that are not adversely affected, such as luncheon meats, pork, ham, carrots, cole slaw, peas, and mackerel. Even at sterilizing doses we find quite a number of foods with either no detectable changes or of such a small degree that there is reason to believe that they can be overcome with some study. Examples are asparagus, bacon, spinach, beef liver, broccoli, green beans, chicken, codfish cakes, corned beef, halibut, ham, pork, pork sausage, carrots, sweet potatoes, waffles. There are of course possibilities in certain formulated foods, such as pork and beans. There are other foods with which more work needs to be done before they can be sterilized without undesirable flavor changes, such as beef, lamb, frankfurters, spinach, and veal. The technical data that is available to us on these matters is still in the development stage. Due to different laboratory procedures and methods of irradiation there are some apparent contradictions in results. Furthermore, the production of off-odors and flavors is influenced by the presence of oxygen, antioxidants, free radical acceptors and the temperature of the food being irradiated.

Related to this matter of taste and appearance, there is an important issue which is still under consideration. This is concerned with the problem of enzyme inactivation. We all know how important

it is to any preserving process to control these natural catalysts of processes that cause off-colors, odors, and loss of texture. These enzymes are not inactivated by the 2 to 3,000,000 reps which are sufficent to kill microorganisms and which is a level at which off-odors and flavors frequently appear. Some are resistant to 10,000,000 reps or higher. We must determine if these enzymes will continue to degrade the food in storage even after destruction of the microorganisms. We have not fully investigated this yet but it may be that we will have to invoke other methods of enzyme inactivation, such as the use of a minimum heat or blanching treatment.

COST—Finally, the process must be economically practicable. At the present time little is known about this subject. Much of the uncertainty here is directly related to the uncertainty surrounding the cost of a radiation source. Pertinent information will be obtained via pilot plant processing 1,000 tons of food a month which is scheduled for operation by the Department of the Army in 1958. An economic analysis will be made by North American Aviation under the same auspices, but this will not be completed until next year. We know now, of course, that we will use beta (cathode) rays and/or gamma (X-rays), with their superior penetrating ranges, but how shall these be generated? We can hope to establish a partnership with central nuclear power developments by using certain surplus energy sources in such a manner as to utilize a by-product not now in demand. In this way we could use spent fuel assemblies, separation of the gamma emitting isotopes cesium 137 and strontium 90 from the shorter life waste fission products, gaseous fission products from the homogeneous reactor (this would require processing at the reactor site) or a reactor made isotope such as cobalt 60. Each of these sources has advantages and disadvtanges. We are trying to narrow the choice for the best production source. Somewhat less uncertain are our figures using electron accelerators. In fact, for foods less than three inches thick there is reason to believe that this would be the method of choice. but for larger sizes, No. 10 cans for example, it is desirable to use the more penetrating gamma rays. There have, of course, been some cost estimates made for food irradiation using gamma irradiation reactors, linear accelerators or fission products. These guesses run as follows:

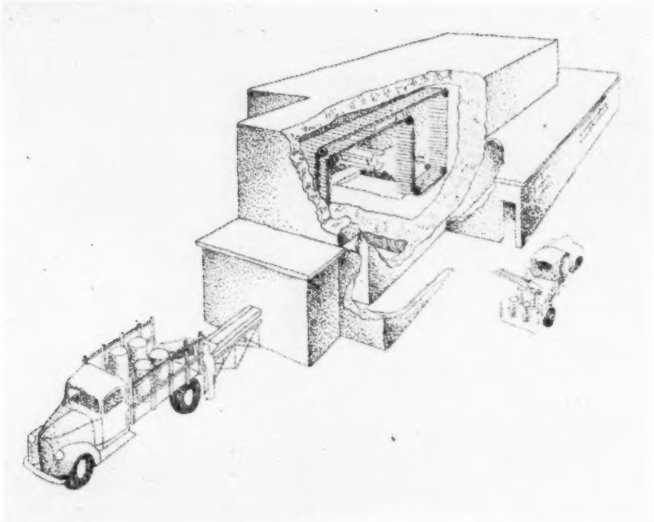
For sprout inhibition—
0.14 to $5.00 per ton

For grain deinfestation—
0.10 to $1.00 per ton

For meat sterilization—
0.3 to 7 cents per lb.

These figures are the best guess of people familiar with the areas involved and should be within range, at least, of reality. Experienced canners or frozen food packers can compare this with the costs in their industry. If comparable costs of the frozen food industry is 2 to 3.5 cents per pound and the cost of retorting and processing canned foods is 0.15 to 0.5 cents per pound for vegetables and 0.8 to 5.0 cents per pound for meat and if we can assume the normal contributions of development engineering and its beneficient result on unit costs, then there is room for optimism indeed.

And so, I think, you have an answer to the question as to how far along is this method of preserving food. We see that there are many problems, that it is still in the development stage, but that progress in the past three years has been at such a rapid rate as to encourage those of us who are closely connected to this work and to develop a feeling of optimism even greater than that previously felt.



Potato irradiation facility using spent fuel elements of radioisotopes.

FOOD PROCESSING METHODS OF THE FUTURE

Before closing, I should like to discuss briefly the effect on the processing methods of the future. There are, of course, large amounts of capital involved in the buildings and equipment now in use, and, fortunately, it is most unlikely that drastic changes will be required. It can be assumed that ordinarily the product will be handled normally and ordinarily be packaged prior to being subjected to ionizing rays. Present technology envisages that a rather small area will be required for beta or gamma sources, which would replace the retorts or freezing units. The irradiation would take a few seconds when electron accelerators are used and possibly 10-15 minutes using more typically sized food packages in cans and gamma radiation. Of course, it is possible, and layouts have been outlined, where the radiation would take place prior to the filler and canning operation using the aseptic method of processing and using heat perhaps to sterilize containers and can lids. Then too the sequence of the processing steps will depend on the type of treatment required. If the product is to be sterilized but not cooked, the source of irradiation can be substituted for the retort in the line after the can sealing machine and, of course, followed by the exterior live steam can washer. If, however, the product is to be cooked just sufficiently for optimum taste and texture or to inactivate enzymes rather than at conventional sterilizing temperatures, then the ionizing source could be placed before or after the retort. Whether or not there is a choice in this case is not yet known.

Where so-called pasteurization is to take place on products such as spinach, irradiation can follow the packaging operation after the washing and blanching operations.

The de-infestation of grain or flour, the destruction of trichina in pork and the prevention of sprouting of potatoes are not expected to present any extraordinary difficulties.

We see then that the irradiation process will not significantly disrupt the food processing line. We must remember that in spite of the many sketches and diagrams that have appeared, no food processing pilot plant using irradiation has yet been built or even designed. The Department of the Army is hopeful of having a facility ready to process 1,000 tons per month by 1958. Only after experience with its operation will we have a sound basis for estimating the feasibility of the process. It appears at present that no unusual storage problems will be encountered. Conventional methods of handling, storage and shipment should be satisfactory. No new or increased amounts of equipment appear necessary. This is also true regarding

(Continued on Page 18)

NEWS and Personals

J. W. "Jack" Rue, Secretary, **Tri-State Packers Association** was named President of the Association of Canners State and regional Secretary's at Atlantic City last month. Other officers are Vice-President, **Warren Spangle**, Secretary, **Indiana Canners Association** and Secretary-Treasurer **Jack R. Grey**, Secretary **Pennsylvania Canners Association.**

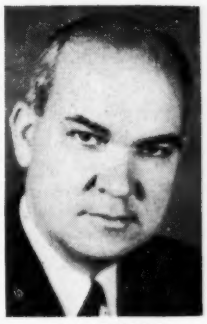
San Joaquin Valley Olive Groves, Inc., has been incorporated in California to engage in the purchasing and operating of olive properties. The new concern is headed by J. J. Bizik, formerly vice-president of G. F. Heublein & Bro., Ltd., Hartford, Conn., a concern interested in fine foods. C. T. Foorman, of San Francisco, is vice-president, and L. B. Sammis, of Wallace, Calif., is secretary-treasurer.

Reynolds Brothers, Inc., Sturgeon Bay, Wisconsin, growers and packers of cherries, at a meeting held in mid-January elected the following officers: D. W. Reynolds, President and Treasurer; Esther L. Reynolds, Vice-President; Ransom A. Severson, Vice-President and Assistant Secretary; Matthew A. Stram, Secretary and Assistant Treasurer. These four officers will serve as the Board of Directors.

The **Illinois Canning Company**, packers of canned vegetables sold under the popular "Joan of Arc" and "Pride of Illinois" brands, has announced the appointment of the following Brokers to represent them in their respective territories: Nagy, Harris Sales Co., New York City, White Service Sales, Inc., Baltimore, Maryland, covering Baltimore and Washington, D. C., and Fortier, Brown & Horil, New Orleans, Louisiana.

The **Waterloo Canning Association**, Waterloo, Wisconsin ,has been purchased by **J. G. Van Holten & Sons, Inc.**, of Milwaukee, packers of sauerkraut and pickles.

The **Brownsville Canning Company**, Brownsville, Wisconsin, has announced that its H. & I. Foods, Inc., subsidiary, is discontinuing operations at Hustisford and Iron Bridge. Brownsville will however maintain the same acreages of peas and corn in the vicinity of Hustisford and Iron Ridge, but will handle the processing at the Brownsville and Reevesville plants.



J. T. HARRISON

John T. Harrison, director of board and corrugated container sales for Union Bag & Paper Corporation, has been appointed a vice president it was announced Feb. 3. A member of the Union Bag organization since 1933, Mr. Harrison has served both as manager of the company's Savannah bag factory and of the company's nothern converting plants.

Herbert A. Nieman & Company, Cedarburg, Wisconsin, recently announced that it is discontinuing both its canning and freezing operations.

Donald E. Bonk, owner of the **Chilton Canning Company**, Chilton, Wisconsin, has been awarded a citation by the Wisconsin Department of AMVETS as the State's outstanding citizen of 1955. The citation states that the selection was made for his "outstanding relationship as an employer in his community and for his excellent relationship with farmers with whom he contracts for the purchase of canning crops". He was also cited for his interest in civic affairs.

The appointment of **V. J. Verhunce** as superintendent of manufacture of **American Can Company's** Central division has been announced by **L. W. Graaskamp**, division vice-president. Mr. Verhunce, who had been manager of the company's St. Louis plant since 1952, succeeds **C. E. Martin**, newly appointed assistant manager of manufacture in Chicago. In his new post Mr. Verhunce will be concerned with the company's division manufacturing activities embracing 25 states and 23 Canco plants. Since 1926, when he joined the can company as an over stripper in a Chicago factory, he has advanced through a succession of increasingly responsible manufacturing posts. He became foreman of the St. Louis plant lithography department in 1939 and subsequently was appointed assembly department foreman. In 1950 he was named assistant plant manager and two years later took over as manager of the St. Louis plant, one of the company's largest manufacturing units.

Edwin A. DeWald, "Salty Ed," who for twenty years was the Sales and Service Manager of the **Scientific Tablet Company**, a Division of The G. S. Suppiger Company, Packers of Brooks Finer Foods of St. Louis, Mo., and remained in that capacity when the Scientific Tablet Co. was purchased by the Morton Salt Company of Chicago, Illinois four years ago, at which time this Division then became known as the Scientific Salting Company, Division of the Morton Salt Company; as of January 1st, Mr. DeWald is no longer connected with either company and has no definite plans for the future. His home is in Belleville, Illinois.

A total of 27 employees of the Berkeley, Calif. plant of the **H. J. Heinz Company** have recently been presented with service awards. One of these, **J. V. Carola** has been awarded a gold watch for 20 years of service and the others given 10-year gold service insignias. Two members were given their awards at the company's 68th annual sales convention at Pittsburgh, Pa. and the rest received theirs from John C. Longaker, manager of the Berkeley plant.

Bert Simon, president of **Globe of California**, a canned food distributing firm with headquarters at 1350 Folsom St., San Francisco, Calif., has been appointed a Public Library Commissioner of this city by Mayor George Christopher.

John Tiedemann, vice-president and general manager of **Tiedemann & Morran, Inc.**, wholesale grocers of San Francisco, Calif., has appointed Wilson-Markey-England, Inc., of this city as advertising agency for Sun Blest Foods.

R. G. Wayne, for years sales manager for the Van Camp Sea Food Co., has joined the **Allen Hartnett Co.**, San Francisco, Calif., manufacturer's agents.

National Canned Tomato Council has announced that the following firms have been recently admitted to membership: Gypsum Canning Company, Port Clinton, Ohio; Summit Packing Company, Wellsboro, Indiana; Quality Food Products Company, Bradford, Ohio; and Covington Cannery, Covington, Ohio.

AGRICULTURE

Guides for Vegetable Crops

Acreage-marketing guides for 1956-crop summer and fall vegetables for fresh use, summer melons, vegetables for processing, and sweetpotatoes were issued January 20 by the U. S. Department of Agriculture.

Reductions of 2 percent in total acreage for fresh summer vegetables, 1 percent for fresh fall vegetables, 9 percent for summer melons, and 6 percent for sweetpotatoes were recommended. The guide for vegetables for commercial processing is a total planted acreage 2 percent more than in 1955.

Issued seasonally prior to planting time the guides are designed to assist vegetable growers in planning production. Action by growers on the department's recommended acreages is voluntary.

The Department said that if production is in line with the guides for 1956 and if marketings follow a normal time pattern for the season, supplies should be in balance with needs at a continuing high level of economic activity.

In the aggregate, the 1956 guides for 16 fresh summer vegetables total 484,-230 acres to be available for harvest (compared with 492,950 acres for harvest in 1955); for 15 fall vegetables the guides total 267,900 acres to be available for harvest (compared with 269,480 acres in 1955); for 2 summer melon crops the guides total 424,200 acres to be available for harvest (compared with 464,270 acres in 1955); and for sweetpotatoes the guide is 334,400 acres to be available for harvest (compared with 357,400 acres in 1955).

The guides for vegetables for processing are on a planted acreage basis. For nine vegetables for commercial processing, the guides total 1,680,810 acres to be planted (compared with 1,650,120 acres planted in 1955).

The Guide for vegetables for processing follows:

Commodity	% change '56 vs. '55
Beans, Lima	No change
Beans, Snap	Minus 10
Beets	No change
Cabbage for Kraut	Plus 10
Corn, Sweet	Plus 5
Cucumbers (Pickles)	Plus 10
Peas, Green	Plus 5
Spinach	Minus 5
Tomatoes	(1)

(1) *Tomatoes for Processing:* Planted acreage 10 percent less in California and equal to 1955 in other states.

GROWER GROUPS BUY PROCESSING PLANTS

During the past month or so, three New York State processings plants, two of them active, have been sold to three groups of farmers in that state. Friends Packing Company at Albion, which processes cherries, tomatoes, tomato products, apple products, peas, and boiled onions, was bought by the same group of farmers who purchased the Orleans County Canning Company at Barre Center, in 1954. The Wegner Canning Company at Sodus was recently sold to a group of growers, who have hired Abe Loring, formerly with the Springfield Bank for Cooperatives, as General Manager. Rex Fubur of Sodus is President of the new organization, which will be known as Silver Shore Cooperative, Inc. The company formerly packed apple sauce, cherries, beets, and carrots.

Air Line Foods, Inc., plant at Hilton, idle over the past several years, has been purchased by a group of growers and will be reconditioned and put into production to handle fruits produced by members. It is expected the plant will pack apple sauce and possibly cherries.

CONTRACT TOMATOES

H. J. Heinz Company will pay Ohio tomato growers $32.00 a ton for No. 1's on the basis of Federal-State Inspection Service grading, according to an announcement by Chan Connolly, Manager, Cannery Growers, Inc., Maumee, Ohio. Connolly stated that his tomato growers cooperative organization approved the Heinz contract which expires October 4, 1956.

Connolly said the contract provides a 10 ton per acre average limiting provision for each receiving station. The growers are restricted to a daily delivery of 30 hampers per acre.

$22.00 a ton will be the price of No. 2's. A maximum of 10 percent culls will be permitted for which the grower will not be paid. 50 percent is the minimum placed on No. 1's. Stems are allowed if the finished product is not effected.

The growers authorized Heinz to deduct from their deliveries a 5 cents per hamper annual rental. Also 10 cents per ton for Federal-State Inspection Service. Heinz supplies the growers with plants at $8.50 per thousand.

It is understood that the Heinz Ohio acreage will be boosted 20 percent over last year.

Hunt Foods, in Ohio, according to an announcement from the same source, has agreed to maintain the 1955 price of $32.00 for 1's and $22.00 for 2's with growers paying 5 cents rental for hampers. Minimums of 40 percent 1's and 7 percent culls were agreed to.

The Lester Dammann farm family, left, receive a gold trophy cup in appreciation for their starring role in Northrup King's new film, "More From Every Acre." Presenting the trophy is Maurice Keating, President of Korthrup King and Ken Erickson, right, Marketing Director and film narrator. The premier was held at the Lester Dammann farm home January 17.

"More From Every Acre" carries a three-fold theme: Good farm management, good plant breeding and good seed production and processing as an answer to successful and profitable farming for every farmer, gardner and grower. The 16 mm. color film, 23 minutes in length, has a planned distribution through film libraries, Universities, television stations and by special request to Northrup King, Minneapolis, for selected audience use.

WASHINGTON

Canned Asparagus Grades

Second Notice of Proposed Revision Issued

A proposed revision of AMS grades for canned asparagus was published in the Federal Register of January 29, 1955 (20 F.R. 651). After a year's study of data submitted by the industry, a second revision incorporating a good many changes, has been published in the Federal Register of January 28, 1956. It is contemplated that the new standards will be made effective not later than April 1, 1956, in time for use during the entire canning season. Interested parties have until February 28 to file suggestions or objections for consideration.

Highlights of the important changes from the first proposal are summarized below: (Those intending to file will of course want to obtain a complete copy of the proposal.)

STYLE — Minimum length of "cut spears" reduced from one half inch to ⅜ inch. Minimum percentage of heads required in this style reduced from 18 to 15 percent by count, when cut into units 1¼ inches or less and from 25 to 22 percent when more than 15 percent of units are longer than 1¼ inches. (This is much more lenient than present standards, which calls for 25 and 33⅓ percent of heads respectively.)

"Bottom cuts" or "cuts-tips removed" are suggested new designation for "center cuts" or "cuts". Minimum length of these also reduced from ½ to ⅜ inches.

GRADES—Grades remain the same as in the first proposal, fancy standard and sub-standard (no extra standard). The provision that fancy canned asparagus may be *fairly free* from defects, with the exception of damaged and seriously damaged units has been eliminated in the second proposal.

TYPES—Reduced from 5 to three—"Green" (all green); "green tipped"—"Spears, tips, and points of which one-half or more but not the entire length measured from the tip ends of 90 percent by count or more of the units are green, light green or yellowish green in color"; "green tipped and white"—"consists of (1) spears, tips and points which are typical white or yellowish white in color and may have green, light green or yellowish green heads and the green color may extend to not more than one-half of the adjacent portions of the stalk, and (2) green tipped and white spears, tips and points, when cut into units, consists of typical white, yellowish white, green, light green or yellowish green units, or a mixture of such units".

DRAINED WEIGHTS — Separate weights are provided for cut spears, bottom cuts or cuts—tips removed. In the first proposal these were included with small, medium and large spears, tips and points. In the new table the weights for the cut spears, bottom cuts or cuts-tips removed, range from a quarter ounce less (than spears) on the small size cans to ¾ of an ounce on the larger consumer sizes and on 10's 3½ ounces less on green tipped and white, and are the same on the green. Three new sizes, the 12 oz., the No. 200 Tall and the No. 5 sq. have been added to the table.

SIZE—Two new sizes "colossal" and "giant" have been added in the new proposal. Colossal is designated as having a diameter at the butt end between 12 and 16/16 of an inch, while the giant measures one inch and over. Diameter of other sizes has been proportionately reduced to: small 5/16 and under, medium 5/16 to 7/16, large 7/16 to 9/16, extra large or mammoth 9/16 to 12/16.

FACTORS

POINTS — The factor of liquor has been put back in the second proposal and is alloted 10 points, which are taken away from character reducing that factor to 40 points. Color and defects remain the same at 20 and 30 points respectively.

LIQUOR—No objective methods for measuring clearness of liquor (as in the present standards) are provided.

COLOR—In measuring color of spears, tips or points the tolerance of 10 percent of the units with white butts, not exceeding one quarter of the length of the unit has been reduced to not more than ⅛ of the length of the unit in the fancy grade, and the tolerance of 20 percent in the standard grade with white colored butts, not exceeding ½ of the length of the unit has been reduced to not exceeding ¼ of the length of the unit. In cuts, tolerance of 10 percent of units which may be green and white or white, has been reduced from 10 to 5 percent in the fancy grade, with the tolerance in the standard grade remaining at 20 percent.

DEFECTS—The bottom range for the factor of defects has been reduced from 26 to 25 in the fancy grade, remaining at 21 for the standard grade. Provisions for seriously damaged units have been tightened for the fancy grade, but relaxed for the standard grade.

CHARACTER — *Spears, tips and points*—In the first proposal, a maximum of 10 percent of green units and 15 percent of other types could possess tough fiber in the fancy grade. The second proposal permits a maximum of 15 percent for all types. In the standard grades, the first proposal suggested a maximum of 20 percent with tough fiber in all green and 30 percent for other types. The new proposal would provide a maximum of 30 percent for green and green tipped and 50 percent for green tipped and white types.

With respect to head development the new proposal retains the provision at not less than 90 percent by count of the heads are well developed in the fancy grade, but provides also, not more than 10 percent of at least fairly well developed heads. In the standard grade the first proposal called for not less than 50 percent well developed, and not more than 10 percent fairly well developed heads. The new proposal provides that not less that 90 percent be at least fairly well developed with not more than 10 percent failing to meet requirements for the fairly well developed heads.

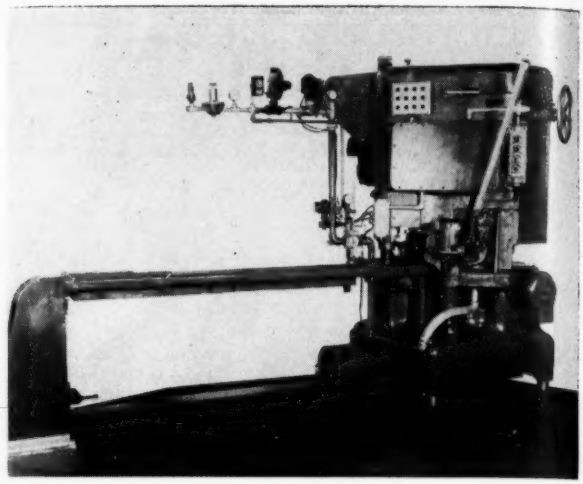
Cut spears and botom cuts or cuts-tips removed—First proposal placed a limit of 5 percent of units with tough fiber on green and all green types and 15 percent on other types to meet fancy requirements. Second proposal raises the percentage to 10 for green and green tipped and to 20 for green tipped and white types. In the standard classification, the first proposal calls for a maximum of 10 percent of units with tough fiber for green or all green type and 30 percent for all other types. Second proposal provides a maximum of 25 percent for green and green tipped and 40 percent for green tipped and white types. With respect to head development for the cut spears, the provisions are the same for the fancy grade—not less than 50 percent by count of heads well developed and the remainder fairly well developed, but in the standard classification the percent by count of at least fairly well developed has been raised from 80 percent to 90 percent in the new proposal.

MEASURING TOUGH FIBER—One very important addition appears in the new proposal with respect to the point of measurement for tough fiber: "The test by Fiberometer on spears, tips and points of the green type is made at a point one inch from the cut end and on spears, tips and points of green tipped and green tipped and white types is made at the mid point of the unit. The test is made at the mid-point of the unit on cut spears and bottom cuts or cuts-tips removed, which are two inches or less, but not less than one inch in length".

•

U.B.C. Distributors, Inc. of Chicago, will hold its 25th Silver Anniversary Meeting at the Hotel LaSalle, Chicago, March 4 and 5. All U.B.C. wholesale distributors, manufacturers, canners and packers are expected to be present at the meeting.

NEW EQUIPMENT



RAPID-FIRE EQUIPMENT—Shown here is American Can Company's ultra-high speed 212-8RG closing machine that closes cans at rates up to 1,000 per minute. This machine is one of three designed by Canco to meet the present-day high-speed requirements of canners of carbonated beverages. It is a self-contained, can revolve closing machine for double-seaming round cans and is equipped with eight seaming units in a revolving cage.

CANCO ANNOUNCES CLOSING MACHINES FOR 'POP' CANNERS

American Can Company has announced the development of three new closing machines, one with a record capacity of up to 1,000 cans per minute, to meet the present-day high-speed requirements of the canners of carbonated beverages. The machinery is designed and manufactured by the can company.

The Canco 212-8RG, the ultra-high-speed 1,000-C.P.M. machine, is a self-contained can-revolve closing machine for double-seaming round cans and is equipped with eight seaming units in a revolving cage.

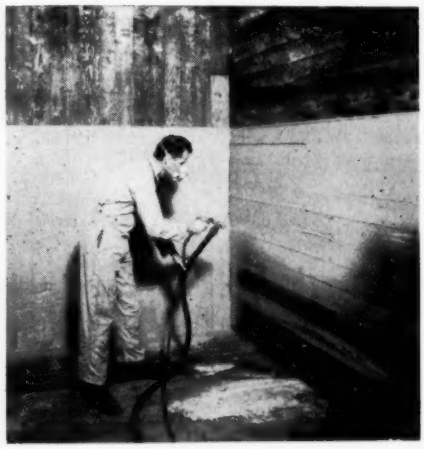
A. O. Morkish, general manager of Canco's closing machine department, says that the 212-8RG can readily be arranged for close hook-up to most fillers to provide smooth can transfer and is equipped with change parts that can be easily removed and replaced to permit closing of cans with varying heights and diameters.

The machine's net weight is 8,880 pounds and the over-all required floor space is 44 by 46 inches. It will close cans ranging from 202 to 211 in diameter and 211 to 604 in height.

The other closing machines are the Canco 410-4RG and the 411-6R2-G. The 410-4RG closes cans up to 350 per minute. It has four seaming units mounted in a revolving cage. It closes cans ranging from 202 to 404 in diameter and 2¾ to 7½ inches in height. It weighs 4,550 pounds and the over-all required floor space is 44 by 119 inches.

The 411-6R2-G will close cans up to 550 per minute and is equipped with six seaming units mounted in a revolving cage. It will close cans ranging in diameter from 202 to 404 and in height from 214 to 708. It weighs 7,200 pounds and requires an over-all floor space of 45 by 92 inches.

The rapid-fire 212-8RG machine, actually closing cans at the rate of 1,000 per minute, was demonstrated at the Canco exhibit at the annual International Soft Drink Exposition at Miami. One of these machines is now in use—by Coca-Cola at its Hayward, Calif. plant where it cans "Coke" for export to the armed forces.



QUICK ON THE UPGRADING

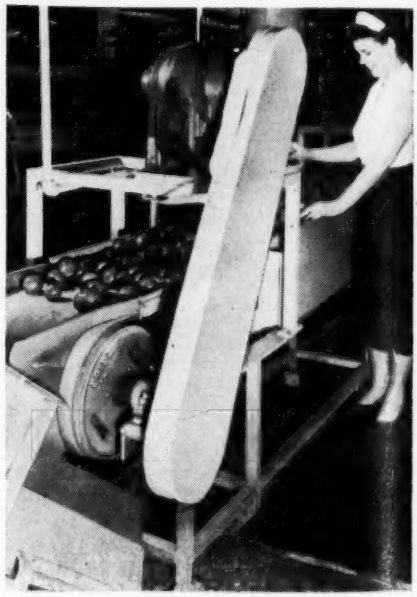
Interior floors and walls of this railroad box car are being upgraded and maintained by a spray application of Glid-Iron, a newly-developed product of The Glidden Company. Possessing excellent adhesion to wood, metal and concrete, Glid-Iron sets to a tough, flexible, chemical resistant finish. It may be applied by spray, brush, roller coater or squeegee. Spray application time is 20 to 30 minutes for a 10 x 40 foot area.

PLASTIC SALT DISSOLVER DEVELOPED

The first successful fabrication of plastic salt dissolvers and brine storage tanks was announced Jan. 3 by the International Salt Company, largest domestic salt producer. Rock salt and evaporated salt dissolvers, and brine storage tanks, all made of polyester glass-reinforced plastics, can now be supplied to the salt consuming industries. Development was done by International's Industrial Division under the direction of Mr. Dale W. Kaufmann, Chief Development Engineer.

The plastic brine units are another "first" in the brine-making field for International Salt. In the early swenties, International developed the first rock salt dissolver, the Lixator, which produced pure, fully saturated brine from economical rock salt. The Lixate Process has modernized methods of salt handling, storage, brine-making and distribution in practically every brine-using industry in the country.

Several advantages are gained by using plastic for the new Lixators, evaporated salt dissolvers, and brine storage tanks. The plastic units completely eliminate corrosion problems. They need no paint. Because they are translucent, the true salt level is visible from any position around the units.



TRAMP IRON ELIMINATED

Eriez non-electric magnetic pulley, shown in foreground, automatically separates all tramp iron from tomato inspection line at Libby, McNeill and Libby's Blue Island, Illinois plant. Tomatoes fall freely into hopper; tramp iron is released from magnetic grip only after it has passed under and beyond pulley.

MARKET NEWS

REVIEWPOINT

THE SITUATION—Pending increased rail rates of approximately 7 percent and inter-coastal steamship rates amounting to about 2½cents a dozen, caused a flurry this week in the canned foods markets as buyers hastened to get under cover before they become effective at the end of this month. Despite the objections of the industry and trade, reports are there is every reason to believe the increase will be approved. The chances are too, the requests for immediate shipment will continue until the effective date—February 25, for the rail and March 1 for the steamship. Reports are that inter-coastal steamships especially out of California are booked to capacity to these dates.

One more obstacle making it difficult for the industry to keep prices to the consumer on a reasonable basis is seen in the announcement this week (See California report) that one large applesauce canner in the area settled with the Teamsters Union, after a six months strike, for a wage rate starting at $1.15 for women and $1.40 for men. Come March 1 when the minimum wage of $1 becomes effective, the entire industry will have to meet that problem. With but one or two exceptions, canned foods are steady to strong in all markets. Under the circumstances even the exceptions are good property.

Should the freight increases become effective, the East will be placed in an even stronger selling position as far as 1955 packs are concerned. However, it means little, for the area is all but sold out on major items.

STOCKS AND SHIPMENTS — The National Canners Association, Division of Statistics has issued reports on January 1 stocks for eight major vegetables, together with shipments for the season, to date. As will be seen by the table on this page, canners started the 1955-56 season with a total supply of these eight items, 6 percent less than last season. By January 1 the supply was 6.4 percent less, with shipments 5.6 percent less. As a whole then, though total shipments to date have been less then last year, they have been proportionately greater. In comparing actual shipments by items for the two years it will be noted that green and wax beans and tomatoes have fallen off most sharply, with asparagus, peas, chili sauce and catsup showing an actual increase. Tomato juice shipments are off only very slightly and corn off 1.8 million cases or slightly over 11 percent.

The relative stock position by item, of course, presents another picture. Comparatively speaking, corn, tomato juice and chili sauce are in most favorable position, although it is well known, that the supply of tomatoes and ketchup is not near enough to go around and the extra million cases of peas is far from burdensome, with many, many short items long since apparent. While the stock features on beans are comparable, the shipment figures are not for the 1954-55 shipment figures include quantities shipped from the pack January 1 to July 1, 1954, while the 1955-56 figures do not include these shipments in the same period of 1955. There were approximately a million cases packed from January to June 1955. Even so, from the looks of things, there will be a substantial carryover of beans, although not too many will be packed during the winter season apparently, due to the high price of raw stock as a result of the recent Florida freeze. Asparagus too, seems destined for a much heavier, than usual, carryover.

Asparagus sales have lagged in California in comparison with other areas. At the beginning of the season, California held 58 percent of the total supply. As of January 1 that percentage has risen to 63 percent, at 1.9 million cases. New Jersey held 217.5 thousand; Illinois 196.6; Michigan 283.5 and Washington and Oregon 226.5 thousand cases.

Much the same applies to **green beans.** The West started out with 44.2 percent of the supply (10,993,180 cases) and on January 1 held 50 percent of the supply (7,136,832 cases). By January 1 the Mid-Atlantic and South had each shipped out 54 percent of total supply, the Mid-West 45 percent and the Northeast 38 percent and the West 35 percent. Of the total supply of green beans on hand January 1, approximately 50 percent or 7.2 million were Blue Lakes, all but about a half million cases (in the South) were in the West. Of the total green and wax bean stocks, 14.1 million were green, 1.8 million wax. Of the total shipments, 10.7 million were green and 1.5 million wax. By January 1 wax beans had been reduced to 916 thousand cases in the Northeast and 605 thousand cases in the Mid-West. Compared with last year, fancy cut regular green beans are especially short, as are fancy cut wax.

Of the total **corn** held January 1, 10.2 million cases were cream style and 10.3 million cases whole kernel; 18.2 million cases were golden; 2.3 million cases white. Last year at this time, there were 12.5 million cases of cream style; 13.5 million cases of whole kernel; 22.5 million cases of golden and 3.5 million cases

CANNERS SUPPLY, STOCKS & SHIPMENTS

8 CANNED VEGETABLE ITEMS

(From N.C.A. Division of Statistics Reports)

(Thousands of Actual cases)

	Tot. Supply		Jan. 1 Stocks		Shipments Beg. Season* to Jan. 1	
	1954-55	1955-56	1954-55	1955-56	1954-55	1955-56
Asparagus	6,000	7,739	1,314	2,987	4,687	4,752
Green & Wax Beans	31,043	28,181	16,042	15,973	15,000	12,208
Corn	41,906	34,530	26,086	20,501	15,820	14,029
Peas	31,488	33,096	13,891	14,876	17,597	18,219
Tomatoes	25,178	23,295	10,046	10,308	15,133	12,987
Tomato Juice	33,540	29,039	18,733	14,463	14,807	14,576
Tomato Catsup	24,255	25,647	12,729	13,330	11,526	12,317
Chili Sauce	2,863	2,831	1,740	1,618	1,123	1,213
Tot. 8 Veg. Items....	196,273	184,358	100,581	94,056	95,693	90,301

* Asparagus March 1, Corn Aug. 1, Peas June 1, Beans, Tomatoes and Tomato products July 1.

of white. The Mid-West, of course, holds the bulk of this year's January 1 supply 14.8 million cases; the far west 3.5 million cases and the East 2.2 million cases. Last year the East held 571 thousand cases of white corn, this year that supply is reduced to 388 thousand cases. There are only 97 thousand cases of standard whole kernel golden corn in the entire country, cream style standard golden reduced to 680 thousand cases, extra standard whole kernel is less than a million cases and extra standard cream style just over a million. Of the total 18 million cases of golden, over 15 million are fancy.

Of the **pea** stocks 11.6 million cases are sweets; 3.3 million cases Alaskas. Of these, the Mid-West holds 8.1 million cases of sweets and 2.9 million cases of Alaskas. Only other important quantities of peas are 2½ million cases of sweets in the far West. There's only a half million cases of sweets in the Northeast and just over a half million cases of both alaskas and sweets in the Mid-Atlantic. The important Mid-West area holds 1.3 million cases of fancy alskas; 1 million cases of extra standards and a half million cases of standards; in sweets 5.1 million cases of fancy; 2.3 million cases of extra standard and 646 thousand cases of sweets.

On January 1 the West held 55 percent of the **canned tomato** supply 5.7 million cases or approximately 14 percent more than held in that area same date last year. The Mid-Atlantic held 1.9 million cases compared with 2.6 million cases last January 1; The Mid-West 1.5 million cases compared with 2 million cases last January 1; The South 898 thousand cases compared with 207 thousand cases last January 1. By quality, the West held 2.4 million cases of fancy compared with 2 million cases last year; 1.3 million cases of extra standard, the same as last year; 1.8 million cases of standard compared with 1.3 million last year. The Mid-Atlantic area held 1.4 million cases of standard tomatoes compared with 1.6 million cases last year and only 455 thousand cases of extra standard compared with 928 thousand last year. The Mid-West held 241 thousand cases of standard compared with 299 thousand cases last year; 945 thousand cases of extra standard compared with 1,208 thousand cases last year and 329 thousand cases of fancy compared with 462 thousand cases last year.

No report of **tomato juice** stocks by area is given, but it is known that California held 7,143,667 cases of the total 14.5 million cases or approximately 50 percent. The same is true of tomato catsup, where California held approximately 50 percent of the stocks or 6,645,747 cases. In chili sauce California held a total of 747,833 actual cases or something less than 50 percent.

NEW YORK MARKET

Fick Up In Buyer Interest—Shipping Space At Premium As Freight Rise Looms—Day To Day Tomato Buying—Beans Firm As Raw Stock Continues High — Corn Steady — Further Rise In Citrus Expected — West Coast Fruits In Demand Prior To Freight Increase—Apples And Sauce Steady—Sardine Demand Picking Up—Salmon Slow Due To Lack Of Supplies—Better Demand For Tuna.

By "New York Stater"

New York, N. Y., Feb. 9, 1956

THE SITUATION—Disturbed by an evident trend in the canned foods market toward moderately higher levels, distributors are taking a new look at their inventories and contractual committments with an eye toward getting their houses in order, supply-wise, for the balance of the current marketing season. While demand was highly selective, there was some pick-up in general trade interest here during the week, with chains and wholesalers inclined to bolster their inventories on commodities which are getting into narrower supply in first hands.

THE OUTLOOK—With higher intercoastal steamship rates scheduled to go into effect shortly, and a general rise of some 7 percent in rail freight rates in the cards, distributors are showing a desire to move unshipped balances from canning plants into their own storage. This is particularly true with respect to shipments originating on the Pacific Coast. Demand for steamer space has become so great that vessels scheduled to clear West Coast ports during the remainder of February are virtually booked to capacity. Some efforts are being made to have one or more supplemental sailings eastward scheduled for this month.

STUDY FARM PROGRAM

The Central Coast Council of the California State Chamber of Commerce met in Berkeley, Calif., the first week in February to discuss the feeling of farmers on the new Benson Farm Plan, flood control plans for the Central Coast Region, and Federal versus State authority in the field of labor relations. Ralph B. Bunje, general manager of the California Canning Peach Association, took an active part in the discussions on the commodity programs. Following a panel discussion on the Benson program, the committeed abstained from taking a position on any part, except in the case of the Soil Bank Plan, which members voted to support in principle. Reports indicated that Alameda and Contra Costa Counties suffered losses totaling $7,500,000 in the floods during Christmas Week.

Distributors are protesting the rate rises, and see their plans to divert more tonnage to motor truck carriers endangered by expectation of a trucking rate rise comparable to the increases sought for waterborne and all-rail shipments.

TOMATOES—Buyers were in the market on a day-to-day basis during the week, and prices held firm. Distributors are afraid that any real large-scale demand for tomatoes would force canner prices up again, and hence are buying only in moderate quantities for prompt shipment. Canner quotations currently find standard 1s in the Tri-States quoted at a range of $1.05-$1.10, with 303s at $1.30-$1.40, 2½s at $2.20-$2.25, and 10s at $8.25 and upwards for full standards meeting all grade specifications. The market in the Midwest is reported strong and unchanged.

BEANS — With raw stock supplies strong, canners are showing firmer price views on canned beans. Standard 303s green are held at $1.10 and upward, with many sellers unwilling to book under $1.12½-$1.15. Fancy French style are quoted at $1.60 and up, but it was reported that the inside figure could be shaded slightly in some quarters. New York State canners are holding firm at list on both green and wax beans.

CORN—Canners see a continued steady movement of corn into consuming channels, and are showing firm price views, particularly on holdings of the better grades. Buyers are in the market for extra standards and fancy.

OTHER VEGETABLES — There was no quotable change in the position of the market for peas during the week, and a fair demand was reported. Buyers are in the market for spinach in a better way, and are encountering firm price views by suppliers, with Eastern packers quoting fancy 303s at $1.35-1$.40 and 2½s at a range of $1.90 to $2.00, f.o.b. canneries.

CITRUS— While the trade had been alerted for another increase in canner prices on orange and blended juices this week, packers were resting on their laurels and did not revise price lists. There was a good demand for juice during the week, with distributors inclined to look for a higher canner price basis during the closing months of the canning season. There was also fair buying interest reported in grapefruit segments and in citrus salad, with prices holding steady on both packs.

WEST COAST FRUITS — As previously noted, trade interest in California and Northwestern fruit packs was centered largely in getting shipments moving prior to the effective date of the increase in intercoastal steamship rates. The increase will approximate 5 cents per case for table sizes of fruits and vegetables, giving distributors who get their

shipments moving at current schedules a competitive edge of about 2½ cents per dozen over those who will have to move their goods eastward at the advanced freight rate schedules.

APPLE PRODUCTS—There was more inquiry reported this week for both apples and sauce, and the market was holding steady in major packing areas.

SARDINES—While Maine canners are making efforts to stabilize the market at $8.50 basis, f.o.b. cannery, for quarter keyless oils, some shading involving consigned stocks is still reported going on, giving the "market" a range all the way from $8.00 to $8.50. Distributor demand is picking up, and carryover holdings in Maine are dwindling steadily.

SALMON—There was little activity reported in salmon this week. The demand was there, but the market is so closely sold up that offerings are limited to small clean-up lots of anywhere from 50 to 200 cases, making carload trading out of the question.

TUNA—There was a better demand reported for both domestic packs and imported as distributors move to round out their stocks for the Lenten season. Many operators are looking beyond Lent into the warm weather months and see the general shortage of salmon, and high prices for that pack, indicating a broadened market for tuna during the summer months.

CHICAGO MARKET

Heavy Shipments—Many Pea Items Short—Hard To Find Tomatoes, Products Tighter—W.K. Corn Could Move Higher—Cleanup In Spinach All But Accomplished—Beet And Carrot Shortage Now Being Felt — Citrus Continues To Move Higher — Choice Pears Only Grade Available — Cocktail Moving Well At Bargain Prices — Prune Plums In Good Shape.

By "Midwest"

Chicago, Ill., February 9, 1956

THE SITUATION—The movement of canned foods into the Chicago market was on the heavy side this past week even though hampered by limited offerings of some important items. Shipments of goods previously covered by contracts or set asides make up the bulk of today's volume particularly where merchandise is short. Many local canners report difficulties in maintaining shipping schedules which is a lot better in the way of troubles than idle crews. If such action continues, the trade are not going to find the amount of canned foods coming out of hiding as they had expected.

Florida citrus canners report over 1,300,000 cases shipped last week and that isn't hay. Prices continue to move higher although, even at current levels, prices on the finished product do not reflect present day costs. The movement of cocktail during the past thirty days has been heavy and it would seem safe to bet the bottom has ben reached on prices with current levels dut to move upward. A scarcity of such items as salmon, kraut, lower grades of corn and peas, tomatoes, tomato products and wax beans is not very helpful but so far, everyday volume is holding up very well.

PEAS—Trying to find standard peas of any variety in Wisconsin is a difficult task these days as little or nothing is offered. A few lots of standard four Alaskas in 303s are offered out of Indiana at $1.25 but the overall picture is one of scarcity. Various grades and sieve sizes in tens are also very tight and many orders are going unanswered. Fancy three Alaskas are strong at $1.70 for 303s and $9.25 for tens while fancy ungraded sweets are bringing $1.55 and $8.25. Canners should have no sales problem between now and another pack.

TOMATOES—Conditions just seem to get tighter here in the Middlewest with each passing week. There is still a fair amount of standard 303s at $1.40 but 2½s and tens are depleted. Extra standard 303s are quoted at $1.50 to $1.60 but again 2½s and tens are almost out of the picture. Last sales here brought $1.65 for 2½s and $9.25 for tens but finding quantities needed sems more important than the price at this stage of the game.

TOMATO PRODUCTS — All tomato products in the local area are as tight as tomatoes or even worse. Fancy tomato juice cannot be found under $2.75 for 46 oz. and $1.30 for 2s and then quantities available are very limited. Catsup in the hands of independents just isn't and the same thing could be said of puree in tens. Despite the huge pack in California, offerings from that area continue on the light side which is making things difficult for Chicago distributors.

CORN—A very firm market with nothing to indicate any change to the contrary until another pack makes an appearance. Government sources have been unable to buy the amount of whole kernel corn in tens needed to fill requirements and are now turning to shelf sizes to fill the gap. As a result, prices on 303 whole kernel could very easily move higher than current levels of $1.50. Cream style corn is generally listed where available at $9.25 for fancy tens with 303s at $1.50 while extra standard is bringing $8.50 and $1.35 with standard at $7.50 and $1.20.

SPINACH—This is a good market for California spinach but the trade here cannot find what they need. The spring pack in that area is still a good two months away and now there is considerable worry about acreage lost because of flooded fields. Plantings will be late in some sections and could cause complications because the market will be completely bare come next April. Ozark canners still have goods to sell and are holding unsold supplies at $1.10 for fancy 303s, $1.60 for 2½s and $5.25 to $5.50 for tens with the latter size limited.

BEETS AND CARROTS — Both of these items have been short right from the start but the seriousness of the situation is just now making itself felt. Buyers here find it's not so easy to find salad sliced beets, fancy sliced beets, certain sizes of whole beets and any kind or variety of carrots. Fancy sliced beets are held in Wisconsin at $1.25 for 303s and $6.25 for tens with salad sliced at $1.00 and $4.75 to $5.00. Fancy diced carrots are listed at $1.10 for 303s and $5.50 for tens while fancy sliced is held at $1.25 and $7.25.

CITRUS—Prices continue their upward movement and everything points to a continuation in that direction. Today's costs on orange juice are already higher than that reflected by current prices and it seems obvious goods are not going to be sold below cost on a short market. This week found natural orange juice up to $3.10 on the 46 oz. size with blended at $2.50 and grapefruit juice at $1.95. Sweetened juice is generally offered for slightly less money.

PEARS—Distributors here looking for standard pears are not having any success in locating anything as most of the industry pro-rated orders a long time ago. Fancy pears are in just about the same situation which only leaves choice grade to be found. In the latter instance, while goods are still offered, they are usually not the count desired which doesn't make the trade very happy. Despite the tightness, prices are unchanged and current sales are being made on the basis of $2.20 for 303 choice, $3.40 for 2½s and $12.50 for tens.

COCKTAIL — California reports indicate heavy movement of cocktail at much lower prices than original opening levels. Actually, with almost any other fruit item on the strong side, present prices on cocktail represent a bargain and apparently, buyers have recognized the fact. This market finds the housewife being offered some really attractive bargains on cocktail and the movement indicates their receptiveness. Prices are now at $2.05 for 303 choice, $3.15 for 2½s and $11.95 for tens with every possibility of the price trend reversing itself and moving higher in the very near future.

PRUNE PLUMS — Here is another fruit item that is shaping up very nicely and should be well sold up with the advent of another pack. The industry has been doing some advertising in a small way and it may be having some effect. In any event, there is no burdensome surplus and prices are firm. Generally, the market is at $1.55 for fancy 303s, $2.25 for 2½s and $7.50 for tens.

CALIFORNIA MARKET

Increased Trading And Urgent Requests For Shipment—Warm Weather Followed Storms — Good Call For Spinach — Tomato And Product Offerings Scarce — Improved Demand For Apricots—Cocktail Harder To Find At Concessions — Employers Group Falling Apart In Applesauce Strike—Tuna Fishing Off To Good Start—Salmon Nominal.

By "Berkeley"

Berkeley, Calif., Feb. 9, 1956

THE SITUATION—Trading in canned foods has picked up somewhat from the levels reached when canners and brokers were in convention in January and with the added business has come quite a few urgent requests for immediate shipment, due to the immenence of increased rail and shipping rates. Prices continue firm on most lines, but a few lines seem to be in oversupply. This may be true on items such as fruit cocktail, and some of the lower grades of green beans, but most fruits and vegetables seem in good shape. All items in the canned salmon list are firmly held, with unsold stocks the smallest in several years. And prices of some items are at an all-time high.

CLEANING UP—The losses to canning crops as a result of the December and January floods are still difficult to estimate, with growers working feverishly to clear orchards from muck in the inundated areas and to get water off lowlands. Warm weather has followed the storms in some areas and reports are coming in to the effect that apricot trees are already blooming. Very heavy snows have fallen in the mountains and this increases the danger of killing frost later on. It has been several years since real damage has come from this source. Planting of spinach is under way in some areas, but no estimates have been made as yet of prospective acreage. Small quantities of asparagus are making an appearance in the fresh markets and this seems to be stimulating the demand for the canned product, the difference in price being marked.

SPINACH — The demand for canned spinach is quite active and holdings of California pack are limited in both number and size. One of the larger operators which controls a sizeable pack made in this State is supplementing stocks with packs made in Texas and in Florida. Its featured brand of Florida pack is offered at $1.42½ for No. 303 and $2.07½ for No. 2½.

TOMATOES — Tomato products of California pack are not being offered in the quantities and assortment that the distributing trade would like to see. Tomato paste is difficult to locate and some canners report they are closely sold up on No. 10 catsup and on almost all sizes in tomato juice. Some offerings of No. 2s are being made at $1.15, with featured brands at $1.22½. Some No. 10 fancy tomato juice has moved of late at $4.80-$4.90. Catsup in the 14-oz. size is moving at $1.80-$1.90, with No. 10 priced at $10.50 for featured brands.

APRICOTS—Rather an improved demand has been noted of late for canned apricots, wtih more interest being shown in some of the lower grades than in recent months. For a time buyers were very selective in their purchases but this seems to be passing. Sales of unpeeled halves are being reported at $1.35 for buffet, $2.15 for No. 303 and $3.30 for No. 2½s. These are in a featured brand listing.

COCKTAIL—Fancy fruit cocktail has moved of late at $2.12½ for No. 303, $3.30 for No. 2½ and $12.25 for No. 10. Here and there sales are reported at less than published list, but sales of this kind are fewer than earlier in the year. The general feeling seems to be that fruit crops may be smaller this year than last and that present holdings may come in handy.

APPLESAUCE—The California applesauce situation seems to be coming to a head and the six-month-old strike may come to an end any day. The first major break in the strike came a week ago, when the Sebastopol Co-operative Cannery, representing some 30 percent of the producing capacity of the canneries, settled with the Teamsters' Union. Other producers have also left the employers' group. Basic wages are to start at $1.15 an hour for women and $1.40 for men. Comparatively small quantities of the 1955 pack of applesauce have been moved, owing to the boycott on retail stores maintained by the Teamsters' Union.

TUNA—The tuna fishing season in southern California waters is off to a good start, January landings having amounted to 15,888 tons, against 10,560 tons for the corresponding period last year, and also more than the showing made in January, 1954. Prices to fishermen were less than a year earlier, being $330 a ton for albacore, $260 for bluefin, $270 for yellowfin and $130 for bonito. Landings of anchovies, Jack mackerel and Pacific mackerel at canneries for January amounted to 5,374 tons, against 2,694 tons for January 1955. Canners are paying $42.50 a ton for jack mackerel, $45.00 a ton for Pacific mackerel and $25.00 a ton for anchovies. Top sales of No. 1 tall Pacific mackerel are reported at $6.75 a case, with those of Jack mackerel at $6.50 and of 1-lb. oval anchovies in tomato sauce at $7.00.

SALMON—The prevailing quotations on canned salmon are largely nominal, since offerings are limited on most items in the list. This is especially true of Alaskan pack. Puget Sound Sockeye halves move off steadily at $20.00.

Radiation Preservation

(Continued from Page 10)

packaging materials although some consideration must be given to the best material for the different treatments. For the sterilization of fresh meats and vegetables, films which are impermeable to water and oxygen, resistant to 2 to 3,000,000 reps of beta and gamma rays, and of sufficient durability are needed. There are commercial films available today which meet the minimum requirement. Here too we may expect that time is on our side and improvements will develop. For the radiation sterilization of foods canned in standard tin cans, the resistance of the package to heat must also be considered. It is probable that for this purpose the present cans may remain in use. The fact that they absorb a significantly greater fraction of the radiant energy due to their greater density than do cans of aluminum or plastic films may require further examination.

And so, it is apparent that much remains to be done before radiation sterilization of foods becomes a commercial reality. There are various scientific and technological questions for which solutions must be found. Among those not previously discussed are the methods of measuring the dosage of radiation received in foods, shielding requirements around the radiation source and radiological safety monitoring devices and practices. Satisfactory answers should and it is hoped will be obtained.

CONCLUDING STATEMENT

One cannot be conversant with the operations of this program without developing an optimism concerning the future use of ionizing radiation, including ionizing sterilization, in the food industry. There are great benefits to be realized by us and by the inhabitants of other countries from the successful completion of this program. But great also are the technical problems to be solved. However, the results of the research efforts of the last three years have been very successful, and commercial applications of radiation in one form or another to some phase of the food industry are closer than most people realize.

The day is dawning when, by means of this new process, the canning industry will be in a position to add to their present challenges and take on expanded business. This could well mean processing a sizable fraction of the massive amounts of perishables that are now exposed to storage and distribution losses and thereby increasing the quantity and quality of foodstuffs available to a hungry world. It is a very humanitarian purpose and I am happy to invite your attention to this exciting and good venture.